

CLAIMS

Claim 1. A locknut adapted for axial engagement of a threaded shaft having an axis and an outer thread, the nut having properties for limiting a tightening torque on the shaft to a predetermined torque, comprising:

5 a first member adapted for rotation about the threaded shaft to facilitate engagement of the outer threads of the shaft;

at least one deflection wall included in the first member and having properties for deflecting outwardly in response to a radial force;

10 at least one second member having inner threads and being disposed in a rotatable, coaxial relationship with the first member;

at least one deflecting element included in the second member and disposed in an engaging relationship with the deflection wall of the first member;

15 the deflecting element having a generally engaged relationship with the deflection wall at a torque level not greater than the predetermined torque to maintain the inner threads of the second member in an engaged relationship with the first member; and

the deflecting element having a generally disengaged relationship with the deflection wall at a torque level greater than the predetermined torque to maintain the inner threads of the second member in a generally disengaged relationship with the first member.

20 Claim 2. The locknut recited in Claim 1 wherein the generally engaged relationship of the deflecting element with a deflection wall is characterized by a friction force between the deflecting element and the deflection wall that increases as the torque level approaches the predetermined torque.

Claim 3. The locknut recited in Claim 2 wherein the friction force is dependent on the resistance to deflection of the deflection wall by the deflecting element.

Claim 4. The locknut recited in Claim 3 wherein the deflection wall has a thickness, and the resistance to deflection of the deflection wall is dependent on the thickness of the deflection wall.

5 Claim 5. The locknut recited in Claim 1 wherein the deflecting element contacts the deflection wall in an interference fit that increases as the torque level approaches the predetermined torque.

Claim 6. The locknut recited in Claim 5 wherein the deflecting element consecutively engages the deflection wall, slides along the deflection wall up to the predetermined torque, and disengages the deflection wall at the predetermined torque.

10 Claim 7. The locknut recited in Claim 1 wherein the deflection wall is non-continuous.

Claim 8. The locknut recited in Claim 1 wherein the second member has a snap-fit rotational relationship with the first member.

15 Claim 9. A locknut adapted for axial engagement of a threaded shaft having an axis and an outer thread, the locknut having properties for limiting a tightening torque on the shaft to a predetermined torque level, comprising:

a first member adapted for rotation about the threaded shaft to facilitate axial advancement of the locknut along the shaft;

at least one second member disposed in a coaxial relationship with the first member;

20 the second member and the first member being rotatable relative to each other with a torque force dependent on an interference fit between the first member and the second member; and

the interference fit increasing as the torque force approaches the predetermined torque level and decreases at the predetermined torque level.

Claim 10. The locknut recited in Claim 9, wherein:

one of the first member and the second member includes a deflection wall;

the other of the first member and the second member includes a deflecting element having the interference fit with the deflection wall; and

5 the deflection wall having an increasing resistance to deflection in a direction of increasing torque.

Claim 11. The locknut recited in Claim 10 wherein the deflection wall has an increasing thickness in a first circumferential direction.

10 Claim 12. The locknut recited in Claim 11 wherein the deflection wall is included in the first member and the first circumferential direction is a direction of increasing torque force.

Claim 13. The locknut recited in Claim 11 wherein the deflecting element has an increasing thickness in a second circumferential direction opposite to the first circumferential direction.

15 Claim 14. A locknut adapted for axial engagement of a threaded shaft having an axis and an outer screw thread, the nut having properties for limiting a tightening torque on the shaft to a predetermined value, comprising:

an outer wall sized and configured for engagement by the user and adapted for the application of the tightening torque to the nut to advance the nut on the threaded shaft;

20 an inner wall integral with the outer wall and disposed radially inwardly of the outer wall;

portions of the inner wall defining an inner screw thread sized and configured to engage the outer screw thread of the shaft;

the portions of the inner wall having a first position wherein the inner thread engages the outer thread to facilitate tightening the locknut on the shaft; and

the portions of the inner wall having a second position wherein the inner thread disengages the outer thread at the predetermined torque to inhibit any further tightening of the locknut on the shaft.

Claim 15. The locknut recited in Claim 14 wherein the second position of the inner wall is disposed radially outwardly of the first position of the inner wall.

Claim 16. The locknut recited in Claim 14 wherein the second position is spaced from the first position a distance sufficient to permit the inner thread of the nut to clear the outer thread of the shaft.

Claim 17. The locknut recited in Claim 16 wherein the inner wall of the nut is circumferentially discontinuous.

Claim 18. The locknut recited in Claim 14 wherein the portions of the inner wall are first portions and the nut further comprises:

second portions of the inner wall having a fixed relationship with first wall, the first portions being disposed axially of the second portions of the inner wall.